

# Notice of Allowability

Application No.

10/737,013

Examiner

Stephanie K. Mummert, Ph.D.

Applicant(s)

CONNOLLY, DENNIS MICHAEL

Art Unit

1637

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 9/25/07.
2. ☒ The allowed claim(s) is/are 72-90.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

**BJ FORMAN, PH.D.**  
**PRIMARY EXAMINER**

### **DETAILED ACTION**

Applicant's amendment filed on September 25, 2007 is acknowledged and has been entered. Claims 1-71 and 91-109 have been canceled. Claims 72-90 are pending. Claims 91-109 were withdrawn from consideration as being drawn to a non-elected invention and are now canceled.

Claims 72-90 are discussed in this Office action.

#### ***Previous Rejections and Response to Arguments***

Applicant's arguments, see p. 17-22, filed September 25, 2007, with respect to rejection of claims 83 and 88-90 under 35 U.S.C. 112, first paragraph enablement have been fully considered and are persuasive. The ground of rejection has been withdrawn.

Applicant correctly states that claims 80-82 were incorrectly included in the original grounds of rejection. Specifically, regarding the broad issue of enablement, Applicant's clarification that "the nucleic acid molecules are used as a template for electronics" (p. 18) and that the nucleic acids themselves are not relied upon for conductance is central to overcoming the rejection. Regarding this issue of the advantage of using nucleic acids for template, "the nucleic acid molecule template allows for 'smart' substrates which now have the information needed to direct their own assembly. Specific sequences associated with one electronic element can be

used to hybridize with the complementary sequence associated with a second element with a high degree of specificity" (p. 19 of remarks). These arguments are persuasive.

Regarding the issue of enabling capacitors specifically, the rejection focused primarily on the issue of lack of teaching of specific detail regarding the number of nucleic acids required to form a functional capacitor. Applicant summarizes the issues and restates that at a fundamental level, a capacitor comprises two insulated wires separated by a dielectric of air, which is enabled by the specification (p. 20 of remarks). The specification specifically teaches coating nucleic acids to form 'wires' and this teaching supports enablement of the capacitor embodiment as claimed. Regarding the issue of enabling inductors specifically, the rejection focused primarily on a lack of specific teaching of how the metal wire would maintain its structure. Applicant states that the inductor can maintain its intended structure, built in one embodiment by wrapping DNA around a histone by "leaving the histone, relying on the rigidity of the metal coating, or applying a second rigid coating over the metal" (p. 22 of remarks). These arguments are persuasive.

The rejection of claims 72-90 under Obviousness-Type Double Patenting is withdrawn in view of the Terminal Disclaimer over US 6,664,103, filed April 5, 2007.

Applicant's arguments, see p. 23-24, filed September 25, 2007, with respect to the rejection of claims 72, 74-76 under 35 U.S.C. 102 as being anticipated by Hollenberg and of claims 77 under 35 USC 103 as being unpatentable over Hollenberg and Huber, have been fully considered and are persuasive. The grounds of rejection have been withdrawn.

***Allowable Subject Matter***

The following is a statement of reasons for the indication of allowable subject matter:

Claims 72-90 are allowed. There is no prior art reference that teaches or suggests forming circuit elements by coating nucleic acids with two or more sequential regions coated with partially conductive materials. The closest prior art, Hollenberg, teaches the coating DNA with metals and includes deposition of two metals onto a surface but does not teach coating sequential regions of DNA with two different materials that are partially conductive. Instead, the DNA is removed before the second material is coated onto the surface.

There is no prior art reference which teaches coating two or more sequential regions of a nucleic acid with partially conductive materials, and therefore no prior art reference teaches the coating of partially conductive materials to form a circuit element comprising a resistor, a transistor, a diode, a capacitor or an inductor.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

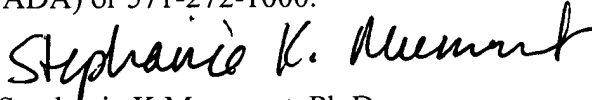
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephanie K. Mummert, Ph.D. whose telephone number is 571-272-8503. The examiner can normally be reached on M-F, 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on 571-272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Stephanie K Mummert, Ph.D.  
Examiner  
Art Unit 1637

SKM

  
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